

of kidney substance. When the capsules were stripped back the parenchyma was found to be not pale and anemic, as has been stated by some, but very hyperemic. As there was free bleeding on the left side, a tampon of iodoform gauze was introduced. Convulsions ceased after the operation; consciousness and memory gradually returned; the quantity of urine markedly increased, and albumin and casts almost disappeared. Urinary fistulas developed on both sides but eventually closed. Unfortunately at five weeks the child died of pneumonia and convulsions, but the mother made a good recovery.

## **PATHOLOGY AND BACTERIOLOGY**

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**The Erythropoietic Action of Germanium Dioxide.**—Maintaining exact conditions of control, HAMMETT, NOWREY and MÜLLER (*Jour. Exper. Med.*, 1922, 35, 173) injected a sterile 0.4 per cent solution of germanium dioxide into four lots of male and female albino rats. Two lots received in four doses at intervals of four days a total of 6.6 mg. per kilo of body weight and the other two were given 45 mg. in three doses at similar intervals. Weekly determinations of the erythrocyte and leukocyte counts of the blood were made seven days apart. It was found that all of the test rats responded to the germanium dioxide by a marked and sustained rise of from one to nearly five millions in the number of erythrocytes in the blood. Those rats which showed a lower initial count responded better, and *vice versa*. There was no indication that the larger doses of germanium dioxide exerted a greater stimulating effect on the production of the resultant erythrocythemia than the smaller doses. Evidently the effect appeared quickly, the red cell count rising within a week after two injections. The coagulability of the blood became increased while color changes were noted in the liver and bone marrow. In a second communication, HAMMETT and NOWREY (*Jour. Exper. Med.*, 1922, 35, 507) reported the results of a histological comparison of the liver, spleen, bone marrow, circulating young erythrocytes and differential counts in the albino rats receiving germanium dioxide, with their litter controls. It was found that while the livers of the test animals showed a capillary dilatation and engorgement, and the spleens were more congested than in the controls, there was no evidence of red-cell formation in these organs. In the bone marrow, however, there was evidence of a marked stimulation in formation of nucleated erythrocytes, as well as an increase in the young red cells in

the circulating blood. No noteworthy differences in the values for the various types of leukocytes in the circulation, as determined by differential counts, could be found. The authors conclude from their experiments that germanium dioxide is a potent erythropoietic agent and that the source of the erythrocythemia is the increased production of red-cell precursors by the bone marrow.

**The Internal Secretion of the Pancreas.**—With the knowledge that since the acinous but not the islet tissue of the pancreas degenerates after ligation of the pancreatic ducts, and assuming that trypsinogen or its derivatives was antagonistic to the internal secretion of the gland, BANTING and BEST (*Jour. Lab. and Clin. Med.*, 1922, 7, 25), working in conjunction with J. J. R. MACLEOD, have conducted certain experiments on dogs in an attempt to prepare an active extract of the island of Langerhans. The pancreatic ducts were ligated for ten weeks, to allow complete degeneration of the acinous tissue, after which interval the degenerated pancreas was quickly removed under chloroform anesthesia and the extract prepared by slicing into a chilled mortar containing Ringer's solution and partially freezing the tissue. The half-frozen gland was then macerated and filtered, and the filtrate, now at body temperature, was injected into eight to sixteen month old dogs depancreatized by the Hédon method or at the initial operation. The results of various experiments on six dogs are shown in detail with the aid of charts. Over seventy-five doses of extract from degenerated pancreatic tissue have been administered to ten different diabetic animals. It was found that intravenous injections of the extract invariably reduced the percentage of sugar of the blood and the amount of sugar excreted in the urine, the extent and duration of the reduction varying directly with the quantity of the extract injected. Rectal injections were not effective and pancreatic juice destroyed the active principle of the extract and boiled extract produced no effect on the reduction of blood sugar. Extracts made 0.1 per cent acid were effectual; however, in lowering the blood sugar, and extracts prepared in neutral saline and kept in cold storage remained potent for at least seven days. The presence of the extract enabled a diabetic animal to retain a much greater percentage of injected sugar than it would otherwise. That the reducing action was not a dilution phenomenon was indicated by the fact that the hemoglobin estimations before and after injections of the extract were the same; that administration of large amounts of saline did not effect the blood sugar and that similar quantities of extracts of other tissue did not cause the reduction of blood sugar. The authors are convinced that the extract contains the internal secretion of the pancreas, which is the factor operative in controlling carbohydrate metabolism; but they feel that the results of their "experimental work," which certainly appear to mark an epoch in our understanding of diabetes mellitus, "as reported in this paper, do not at present justify the therapeutic administration of degenerated gland extracts to cases in the clinic."

**The Diagnosis of Syphilis in Malarial Subjects by the Wassermann Reaction.**—JOHNSON (*Jour. Path. and Bacteriol.*, 1921, 24, 145) reported the results of 738 complement-fixation tests for syphilis on 74 cases of

malaria, all of which were under treatment with quinine (20 to 30 grains daily). The tests consisted of the original Wassermann (using two M. H. D. of complement), Tschernogobouw's modification, Fleming's modification and the Hecht-Fleming method. In 19 cases the first blood specimen was collected during an actual rigor or at a short interval after a rigor, in 45 there was no record of rigor but the first specimen was obtained when the parasites were found in peripheral blood and in 10 cases the blood was collected when no parasites were found but typical relapses subsequently developed with parasites in the finger blood. All cases clinically syphilis or giving a history of previous syphilitic infection were excluded. On retesting the bloods only 7 per cent were found to give positive Wassermann reactions. These investigations indicate that the blood in active benign tertian, malignant subtertian and mixed malaria does not give a positive Wassermann reaction; that positive findings are due to syphilitic infection or to certain factors in the technic employed or to non-specific changes in the patient's serum; that in such cases the serum should be retested and that a positive reaction confirmed by a subsequent test is evidence of luetic infection.

**The Wassermann Reaction in Relapsing Fever.**—Out of 18 cases of relapsing fever, ROAF (*British Jour. Exper. Path.*, 1922, 3, 59) found 11 positive to the Wassermann reaction (Emery's and Fleming's modifications) at some stage of the disease, but 6 of the 7 negative cases were tested only once. Excluding 2 of the positive cases in which the test was not repeated, 3 out of 9 persisted during the period of observation (seventeen to twenty days), while all others had become negative eight to thirteen days after the onset of the fever. Two cases were negative on first examination, but became positive three and six days after onset. As a result of these observations the author believes that a transient positive Wassermann reaction may be found as a constant phenomenon during the acute stage of relapsing fever; that the transient character distinguishes it from the reaction due to syphilis, and if the positive result persists in a given case, syphilis may be suspected also.

**Digestion of the Esophagus as a Cause of Postoperative and Other Forms of Hematemesis.**—PRINGLE, STEWART and TEACHER (*Jour. Path. and Bacteriol.*, 1921, 24, 396) call attention to the fact that, in all probability, many of the cases interpreted as postmortem digestion of the esophagus have, in reality, an origin during life and report 18 cases, 16 of which were fatal. Ten of the cases were surgical in nature, 2 were associated with accidents and 6 with medical diseases. The outstanding clinical feature was vomiting of black or brown material, twenty-four to thirty-six hours before death, this symptom being found on 13 occasions. In the esophagus itself two striking and distinctive phenomena consist in the presence of black sloughs indicative of intense congestion and hemorrhage and the contrast between the broken-down esophagus and the stomach, which is either totally free from digestion or only slightly digested. Two of the cases showed a slight involvement, 7 presented extensive ulcerations and 9 had perforated with widespread destruction of the lower portion of the esophagus. Hemorrhages are always present in the esophageal wall and sometimes in the lungs and pleura. Microscopically the condition is a severe ulceration

attended by necrosis, solution of tissue and an acute inflammatory reaction. The authors believe that the condition is not rare, that it is not an agonal manifestation, "but one the nature of which can be diagnosed during life and which might be amenable to treatment."

## HYGIENE AND PUBLIC HEALTH

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**Typhus Fever on the San Juan Indian Reservation, 1920 and 1921.**—ARMSTRONG (*Public Health Reports*, 1922, 37, 685) reports on an outbreak which resulted in 63 cases and 27 deaths on an Indian Reservation in the arid Southwest. The epidemic occurred among an Indian population showing 90 to 100 per cent infestation with head and body lice. The infection was probably introduced by laborers from Mexico. The early cases were variously diagnosed as influenza, measles and typhoid fever. The infection existed for about six months before being recognized. The problems of control were made more difficult by the isolation of the affected region, poor roads and scarcity of fuel and water. Delousing was accomplished by the application of a mixture of kerosene and gasoline, the use of a solution of nicotine, 1 : 1000, and by steam and boiling in the case of fomites. An emulsion of kerosene 2 parts, soap 1 part, and water 4 parts was also used to advantage for the body and hair. Cases were in general isolated in their own homes.

**Experimental Studies on Tuberculous Infection.**—KRAUSE (*Am. Rev. Tuberc.*, 1922, 6, 1) confirms his belief in the Cohnheim-Cornet-Ribbert Law of Localization, in view of a constantly recurring demonstration provided by infection of a culture of low virulence known as R. 1. Krause emphasizes his belief that at its culmination every case of tuberculosis represents, in some degree, the fruition of a long sequence of accidental circumstances. Krause has made a careful study of the course of tubercle bacilli from the path of entry to the lungs in guinea-pigs and rabbits. He has shown that in the guinea-pig the tracheo-bronchial nodes show gross tubercle earlier than the lungs. In rabbits, on the other hand, he generally finds marked involvement of the lungs with slight or only moderate infection of the tracheo-bronchial nodes. Between the microscopic structure of the normal lungs of guinea-pigs and rabbits, there are important differences, which would permit tubercle bacilli to pass through the lungs of the guinea-pigs on to the